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HENRY BESSEMER AND THE STEEL REVOLUTION

*Dr. Alan Birch, University of Sydney
Conclusion from No. 28 (December 1963)*

THE TRIUMPH OF STEEL OVER WROUGHT IRON

“The Revolution we are about to announce is not in Sicily against King Bourbon, nor in France against the Emperor, but here in England. In science, in the manufacture of iron and in arts in which all the world is interested. What but a complete revolution in all our ideas is produced by the fact that a blast of cold compressed air directed on a molten metal, without any fuel . . . lashes it into most furious heat, makes it boil and bubble and throw up scum like a soup kettle under which a great fire is blazing? What but a complete revolution has begun in the whole manufacture of iron, when it is shown that we can draw off melted iron from the blast furnaces . . . into another furnace and from it . . . run off in half an hour, into any shape, cast steel or perfectly pure malleable iron, fit for all the many purposes to which steel and iron are put? The invention of the railroad, with its adjunct to telegraph, was not the beginning of a more important revolution than is, we know, now commenced in the iron trade . . .¹⁾”

“Its history may be suitably divided into three epochs — the first, the experimental and struggling period, which extended from 1856 . . . to 1865, when it had been taken up at several of the leading works in this country, and had been adopted in Germany, France and the United States; the second, the development period, which extended from 1865 to 1884, during which the process was developed rapidly and largely, not only in this, but in other countries as well,

and the third, the stationary or retrogressive period which extended from 1884 to the present time (1895) and during which, in this country at least, the make of Bessemer steel has greatly declined . . . what is to become of the Bessemer steel industry? Is it destined to dwindle and decay, like the industry which it superseded for a time, but which now threatens to outlive it?²⁾”

This is not a history of that decline of the Bessemer steel industry, which seemed so imminent in the 1890's. Indeed, a full account of that period of the relative decline of the British industry and the frightening and meteoric rise of the steel industry of the Austro-German empire would take this study far beyond its intended limits. However, it is necessary to see the first and second phases of the Bessemer steel industry in this country in perspective. The achievement of Bessemer in creating ‘mild steel’ was, as we know, overshadowed in Britain by Siemens' Open-Hearth process. On the Continent, the availability of the iron-ores of Alsace-Lorraine and certain metallurgical improvements made possible a rate of expansion quite outpacing the growth of both the Bessemer and Open-Hearth sections of the industry in Britain. The shock of this continental prowess gave rise to what Armytage, ironically but aptly, terms “intimations of industrial mortality³⁾.” And D. L. Burn, of course, had previously interpreted the period of adjustment to the metallurgical revolution started by Bessemer as a study in competition. His first section is entitled “Mid-Victorian Alarms”⁴⁾ and his starting point is the Paris Exhibition of 1867, when British exhibits made

¹⁾ *The Economist*, August 1856 pp. 952–3 quoted in Gibson, “The Establishment of the Scottish Steel Industry” (*Scottish Journal of Pol. Econ.*, Vol 5, 1958).

²⁾ “Before Bessemer and After”, *Iron & Coal Trades Review*, 26 July, 1895, pp. 113–4.

³⁾ W. H. G. Armytage, “Portends and Polytechnics; the effervescence of Civic University Colleges in England 1867—1898”, *The Universities Review*, October, 1952.

⁴⁾ D. L. Burn, *Economic History of Steelmaking* (London, 1930).